

Developing landcare – land system science interactions: showcasing methodological advances in European research

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Upscaling sustainable land management (SLM) needs information from land system science, and vice versa, soil and landcare science can contribute to land system science research agendas. In this presentation, we will give an overview of activities developed within a number of European research projects and related global initiatives hosted in Wageningen, the Netherlands. Firstly, in order to better understand the scope for applying different SLM measures across the world, a crucial source of information is global soil mapping innovations. Mobile phone applications such as ISRIC's SoilInfo provide 3D soil type and property information at a spatial resolution of 250 m. And mapping tools – e.g. for soil organic carbon contents – are now becoming available for those stakeholders that prefer to use their own data for analysis. Besides soil information, scenarios of restoring soils, maintaining soil quality and preventing soil threats should be considered in global impact assessments. Benchmarking soil quality ranges for specific farming systems and pedo-climatic zones can show the improvement potential for soils in each location. This two-way process is the core of the EU Horizon2020 iSQAPER project, which is developing a soil quality app for Europe and China. A framework for assessing land management effects on ecosystem services has been developed in the EU FP7 RECARE project and can inform further benefits of land management. Within RECARE, we are developing an integrated assessment model of land use and land management change at European scale, for the first time dynamically integrating land use and land management decisions. The presentation will close with an example of integrating the assessment of the global potential of SLM to contribute to climate change mitigation.